



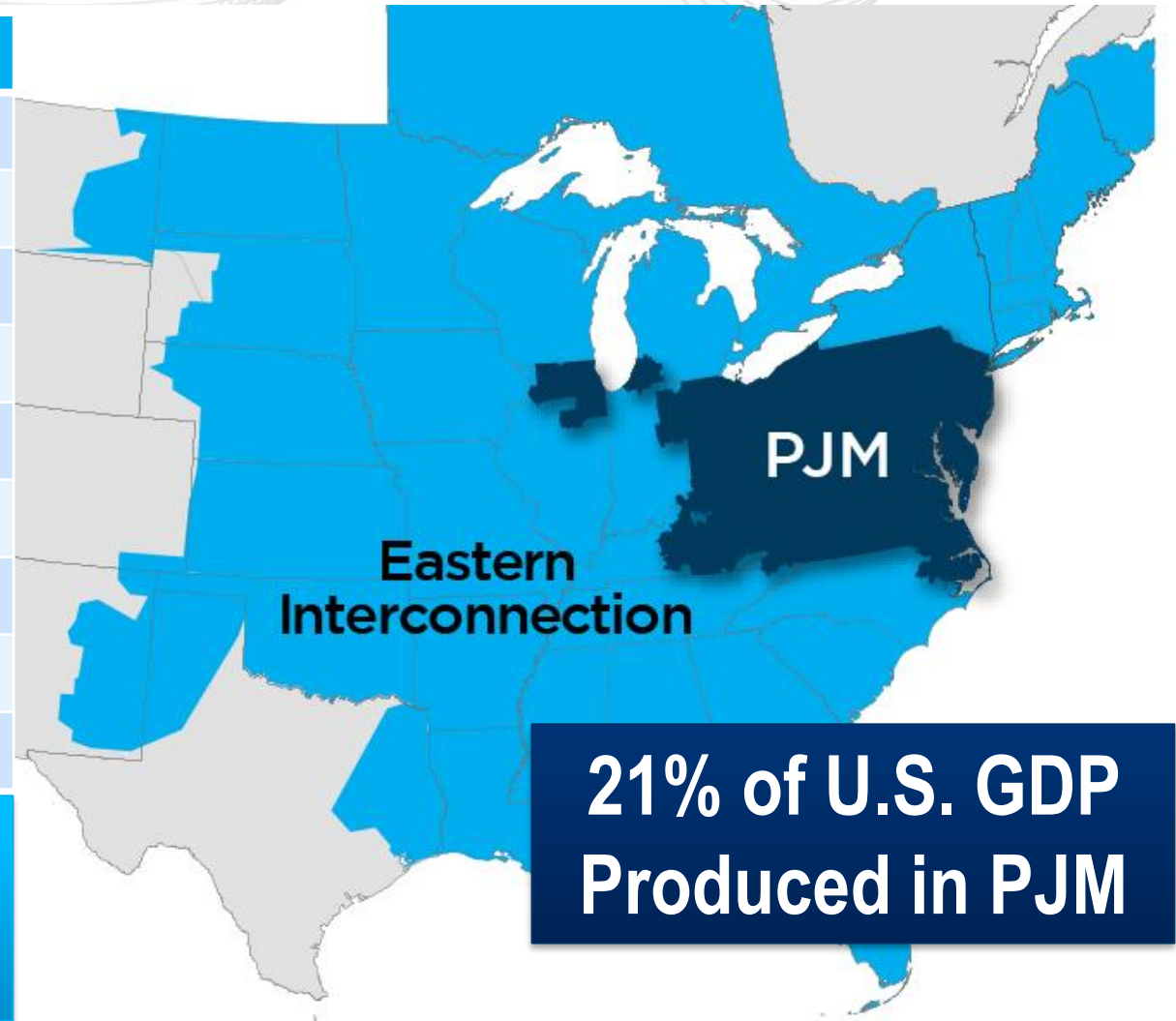
Summer 2022 PJM Reliability Assessment

Illinois Commerce Commission
June 2022

Key Statistics

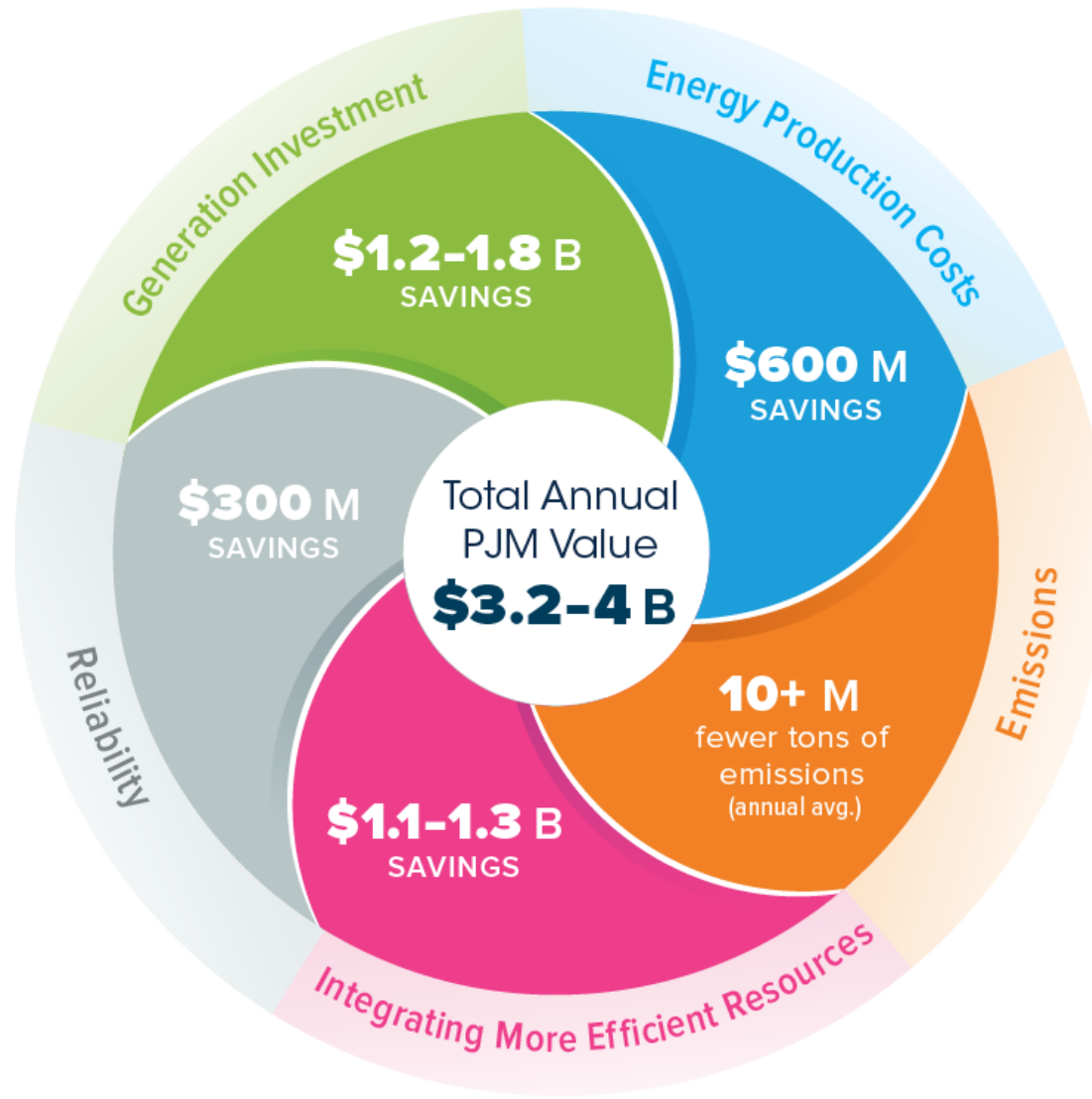
Member companies	1,060+
Millions of people served	65
Peak load in megawatts	165,563
Megawatts of generating capacity	185,442
Miles of transmission lines	85,103
2020 gigawatt hours of annual energy	782,683
Generation sources	1,436
Square miles of territory	368,906
States served	13 + DC

- 26% of generation in Eastern Interconnection
- 25% of load in Eastern Interconnection
- 20% of transmission assets in Eastern Interconnection



**21% of U.S. GDP
Produced in PJM**

As of 2/2022



— All numbers are estimates. —



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Illinois Overview

Existing Capacity:

Total installed capacity in the IL service territory:

Natural Gas
~40.7%

Nuclear
~39.8%.

In the region PJM serves, natural gas is 44.2% of total installed capacity, while nuclear represents 17.5%.

New Interconnection Requests in IL:

Solar: 46.2%

Natural Gas: ~26.8%

Deactivations:

1,202 MW in IL gave notification of deactivation in 2021.

RTEP 2021:

IL's 2021 RTEP project total represents \$53 million in investment.

Load Forecast:

Summer peak load is projected to decrease by 0.3% annually over the next 10 years in the ComEd Zone.

PJM RTO projected load growth rate is **0.4%**.

2022/2023 Capacity Market:

20,011 MW in IL cleared in the 2022/2023 Base Residual Auction.

Jan. 1, 2021, to Dec. 31, 2021, Market Performance:

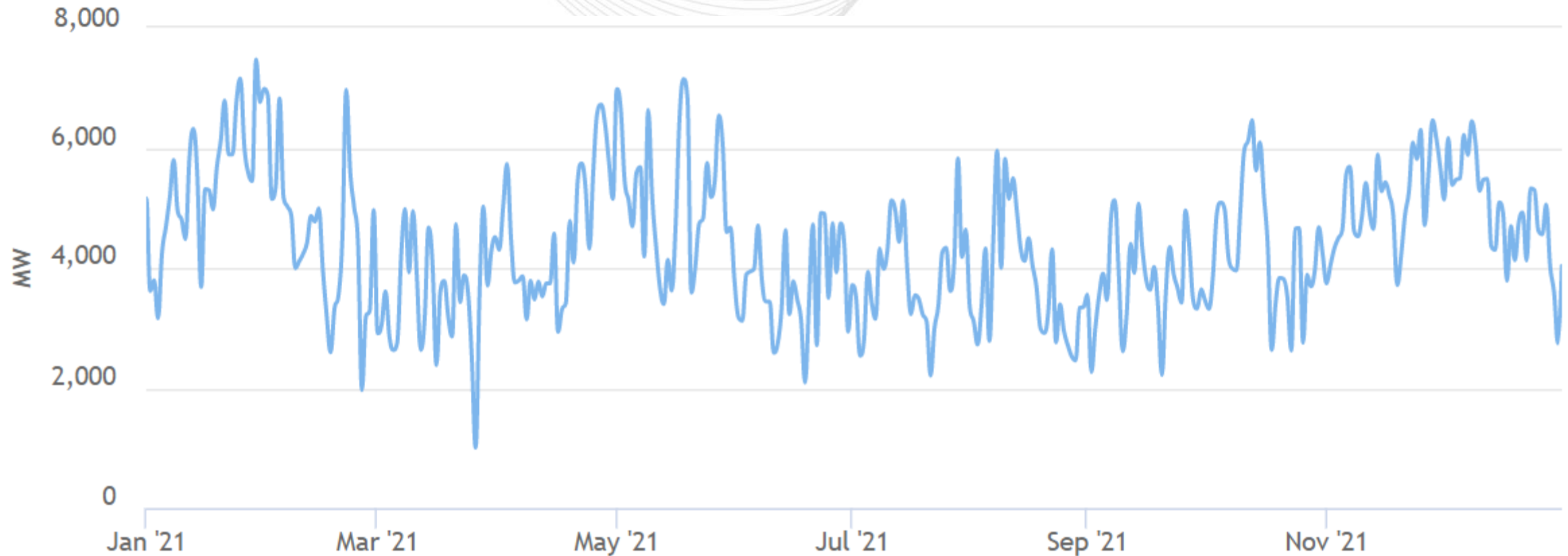
IL's average hourly LMPs were below the PJM average hourly LMP.

Emissions:

IL's average CO₂ emissions increased in 2021 compared to 2020 levels.

Illinois – Net Energy Import/Export Trend

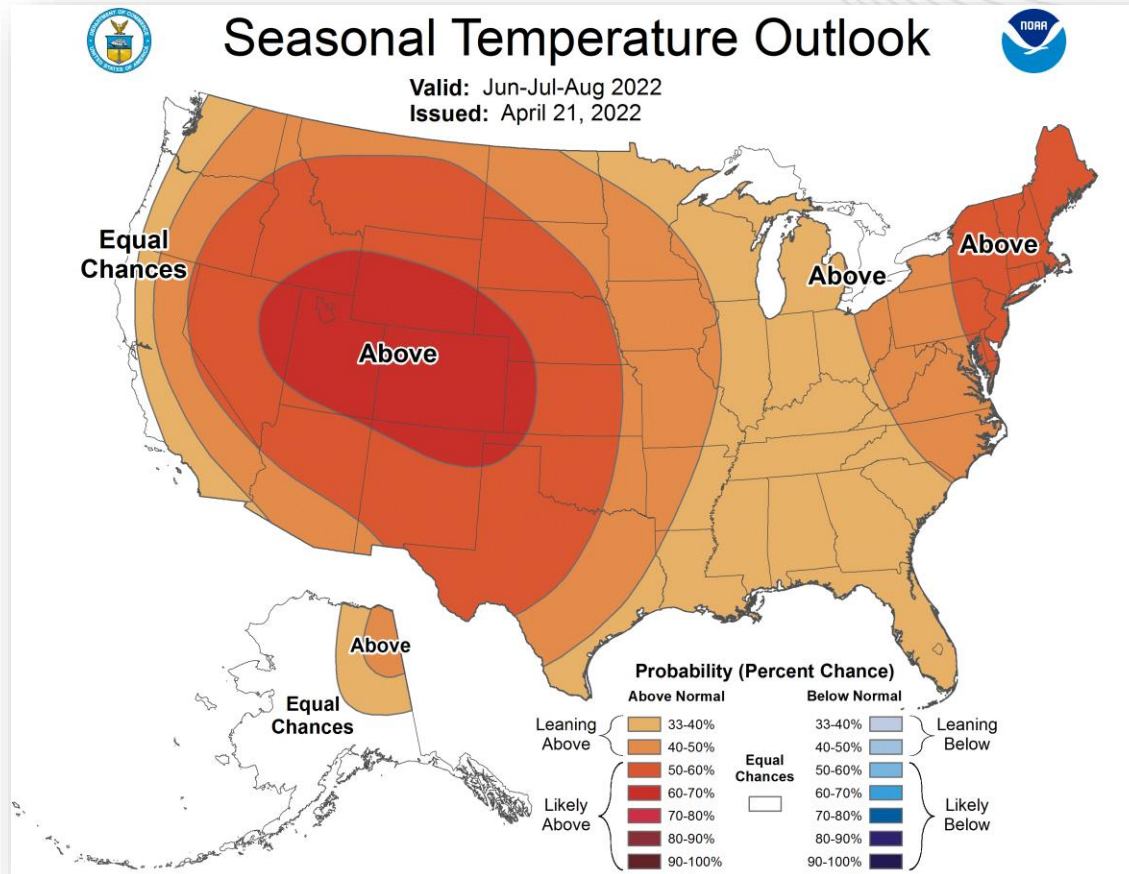
(Jan. 2021 – Dec. 2021)



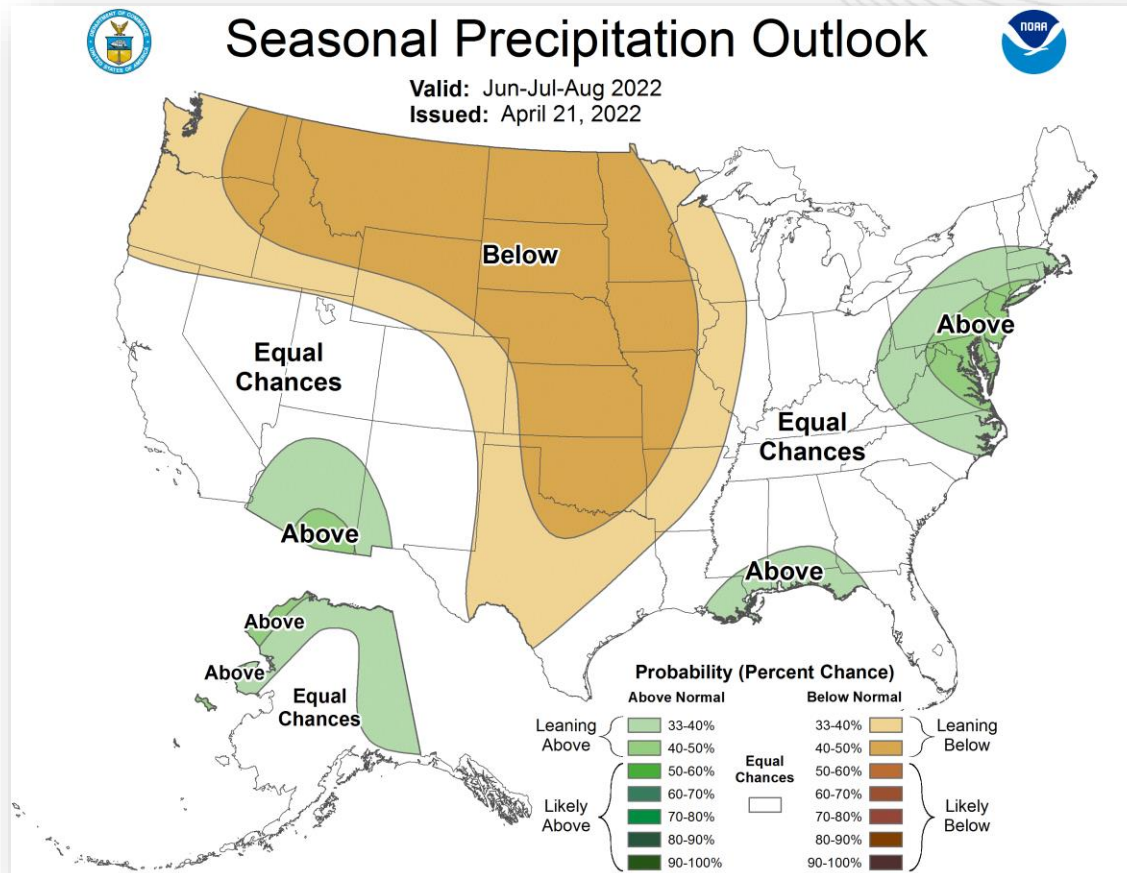
This chart reflects the portion of Illinois that PJM operates. Positive values represent exports and negative values represent imports.

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2022 Weather Outlook



- Nationally, temperatures are likely to be above the 30-year normal, closer to 10-year average.
- Forecast is influenced by warm ocean waters and drought in West.
- Recent trends support a warmer-leaning forecast.
 - Six of the top 10 hottest summers have occurred in the last decade.



- May see wetter-than-normal weather along the East Coast
 - Potential for increased humidity, which impacts comfort level, A/C usage
- Drought conditions expected to intensify in western U.S.
- Not necessarily indicative of tropical storm activity

Hurricane Season Forecast 2022			
	1991-2020 Average	Colorado State Univ.	The Weather Company
■ Total Named	14	19	20
■ Hurricanes	7	9	8
■ Category 3 or higher	3	4	4

The Weather Company (April 14, 2022).

“...it only takes one storm to devastate a community.”
(Ben Friedman, acting NOAA administrator)

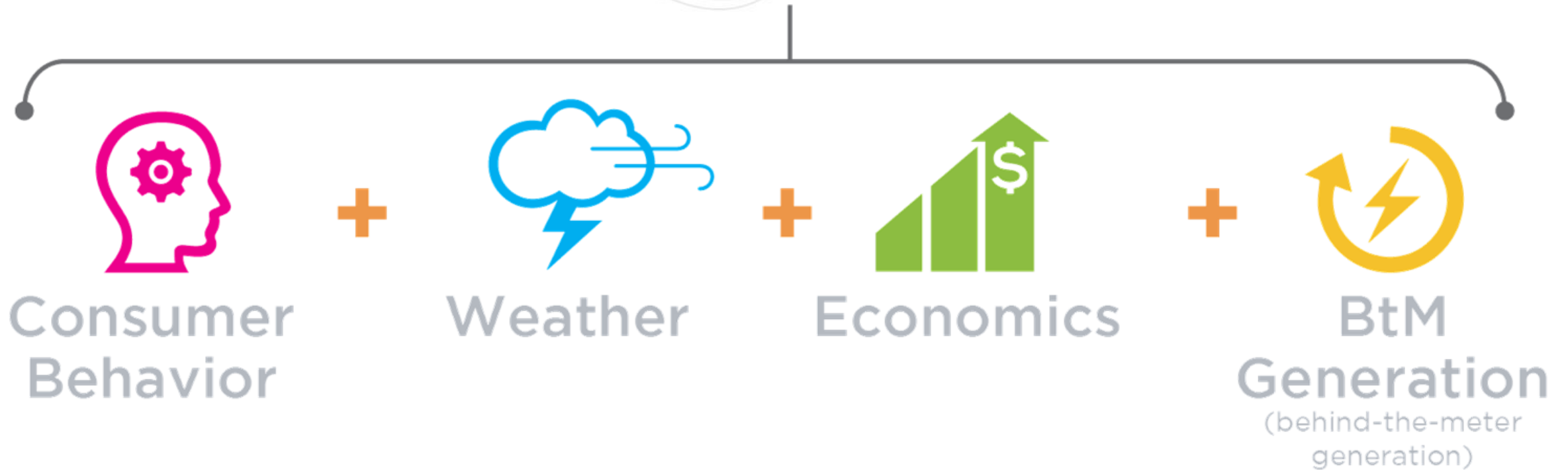
- Forecasters agree: 2022 may continue the recent string of active hurricane seasons.
- Conditions favor hurricane development.
 - Warm Atlantic waters
 - Low wind shear due to La Niña-like atmospheric conditions
- Hurricane season officially begins on June 1, though eight of the last 10 years saw tropical activity in May.

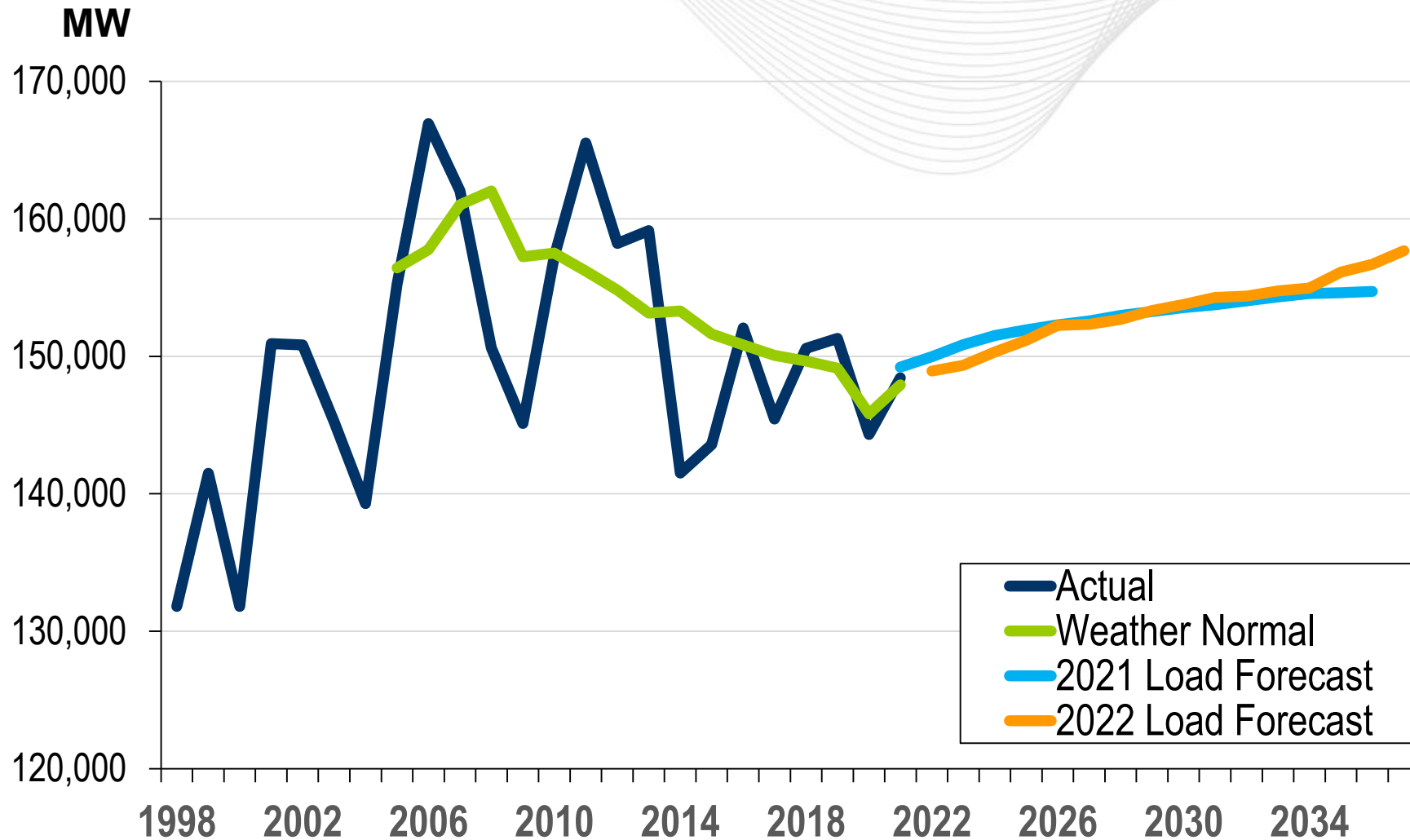


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Load Forecasts

LOAD FORECAST





15-Year Annualized Growth Rate

Load Growth

2021
0.2%

2022
0.4%

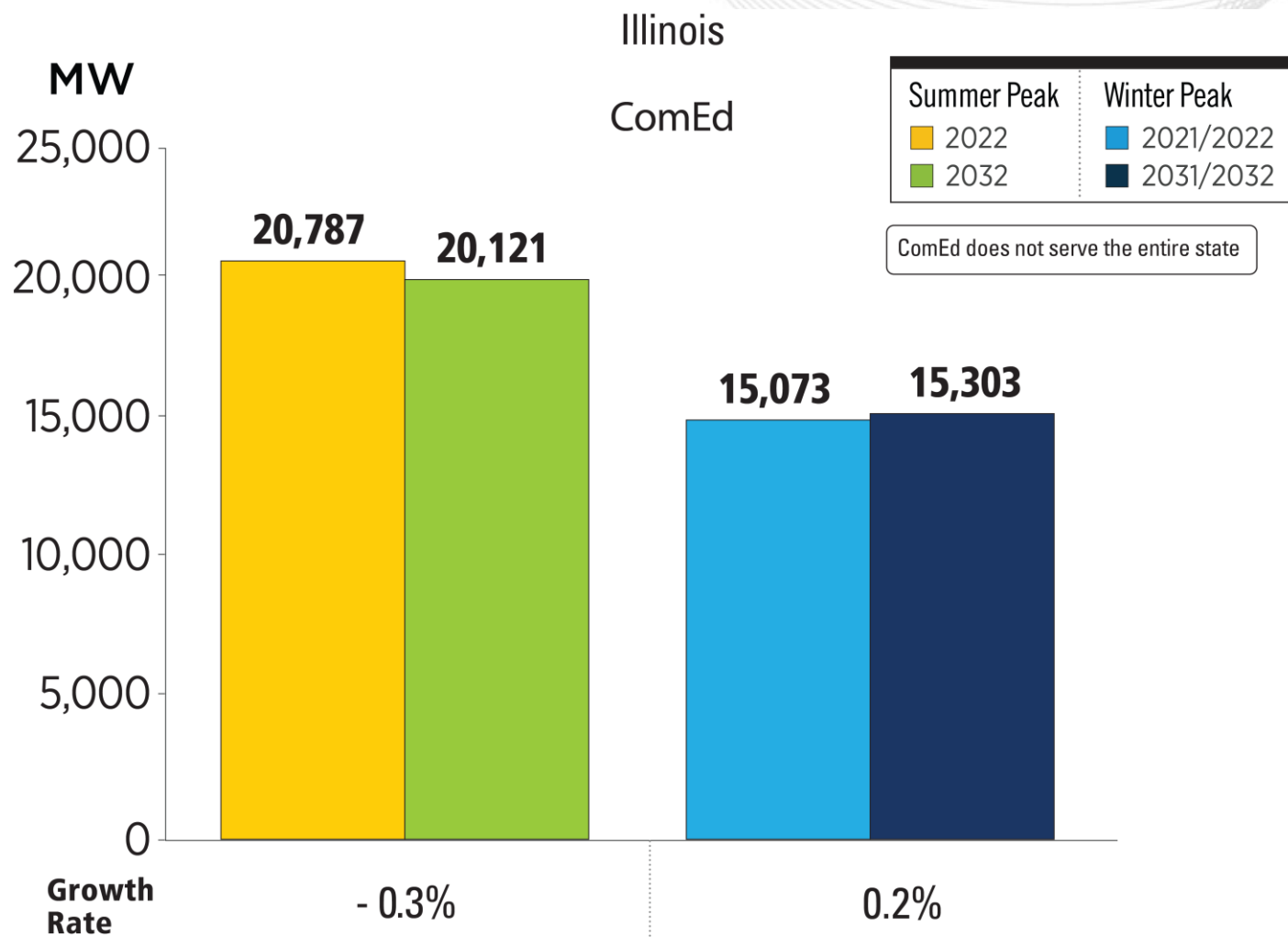
Select Year Comparisons

Load Forecast:
2022 vs. 2021

2024
0.8% ↓

2026
0.0% ↓

2036
1.3% ↑



PJM RTO Summer Peak

2022

149,938
MW

2032

154,381
MW

Growth Rate 0.4%

PJM RTO Winter Peak

2021/2022

132,102
MW

2031/2032

141,516
MW

Growth Rate 0.7%

The summer and winter peak megawatt values reflect the estimated amount of forecasted load to be served by each transmission owner in the noted state/district. Estimated amounts were calculated based on the average share of each transmission owner's real-time summer and winter peak load in those areas over the past five years.



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2022 Operations Summer Assessment

Perform a summer reliability assessment to include any additional sensitivity analysis required

Coordinate summer assessments with neighboring systems (NYISO, MISO, TVA and VACAR)

Conduct emergency procedures drill to prepare PJM staff and PJM stakeholder staff for any emergency operations

Request biweekly generator fuel inventory and supply data to maintain situational awareness throughout the spring and into the summer of 2022

Summer 2022	DEMAND			PJM Installed Capacity ~ 185,000 MW
	Forecast Summer ~149,000 MW	Summer Study Average 154,000 MW	Summer Study High 157,000 MW	



Relative Peaks



**2021 Summer Peak
(July 20)**

~149,000
MW

**All-Time Summer Peak
(2006)**

165,563
MW

50/50 Non-Diversified Peak Load Base Case

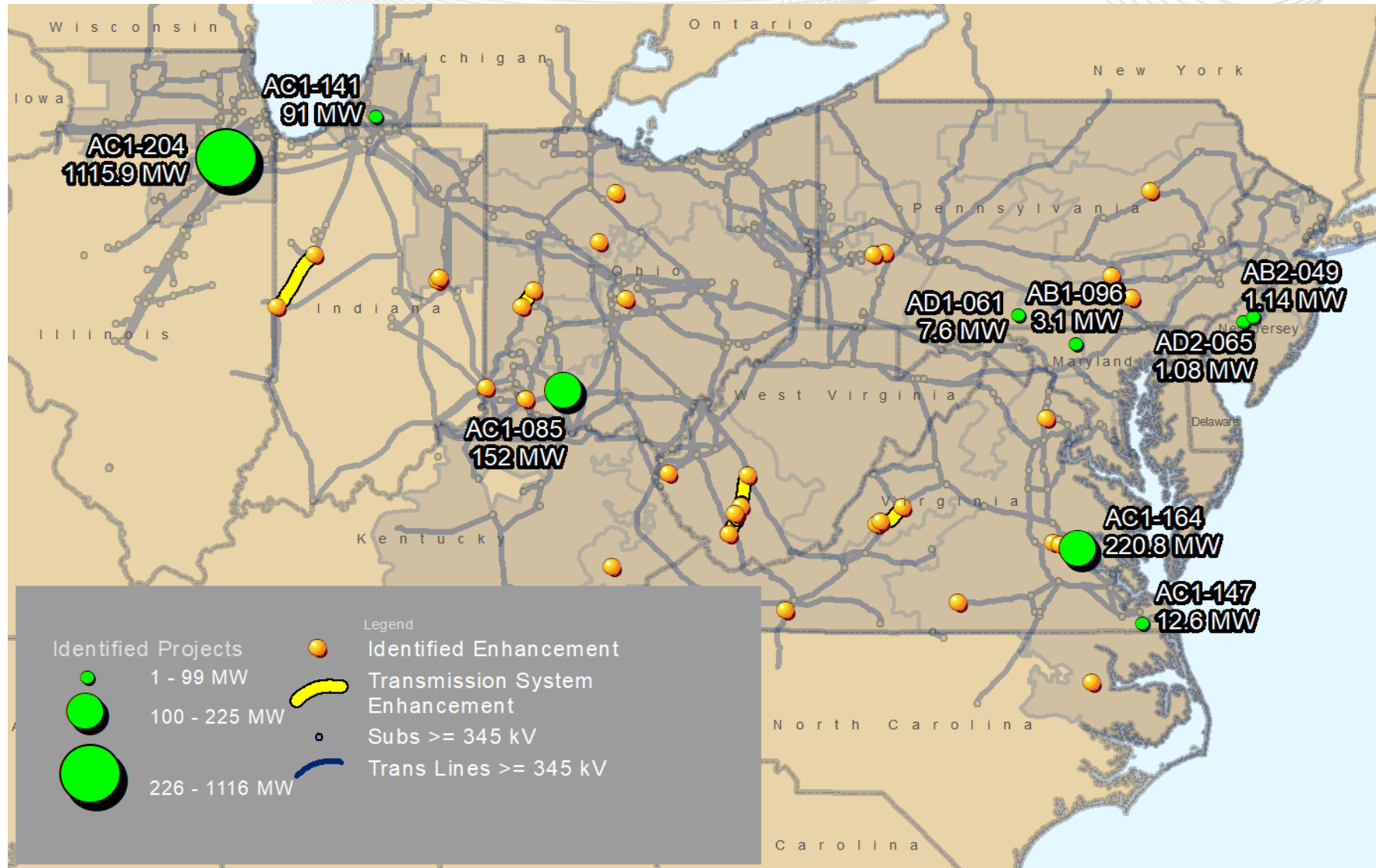
LAS Load Forecast	Preliminary RTO Net Interchange	PJM RTO Installed Capacity	Discrete Generator Outages
153,550 MW	3,989** MW (Exporting)	184,837 MW (preliminary)	13,541 MW

***OATF Case Interchange (-3,989 MW) = Forecast Net Interchange(-5,340 MW) + Pseudo-Tie Adjustment (1,351 MW)*

PEAK LOAD ANALYSIS

No reliability issues identified.

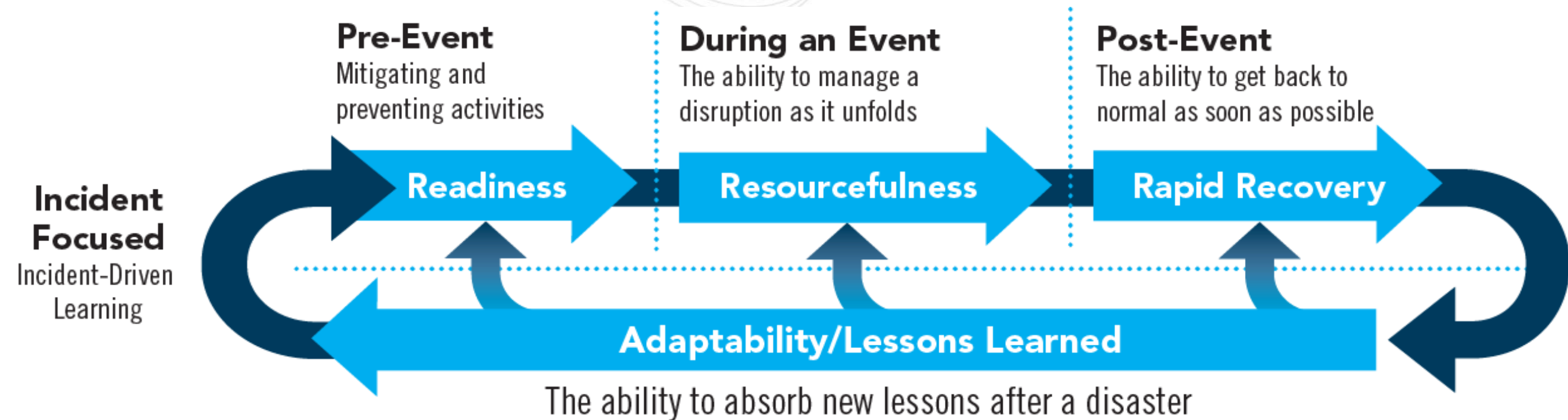
- No reliability issues identified for base case and N-1 analysis.
- Redispatch and switching required to control local thermal or voltage violations in some areas.
- All networked transmission voltage violations were controlled by capacitors. All other voltage violations were caused by radial load.

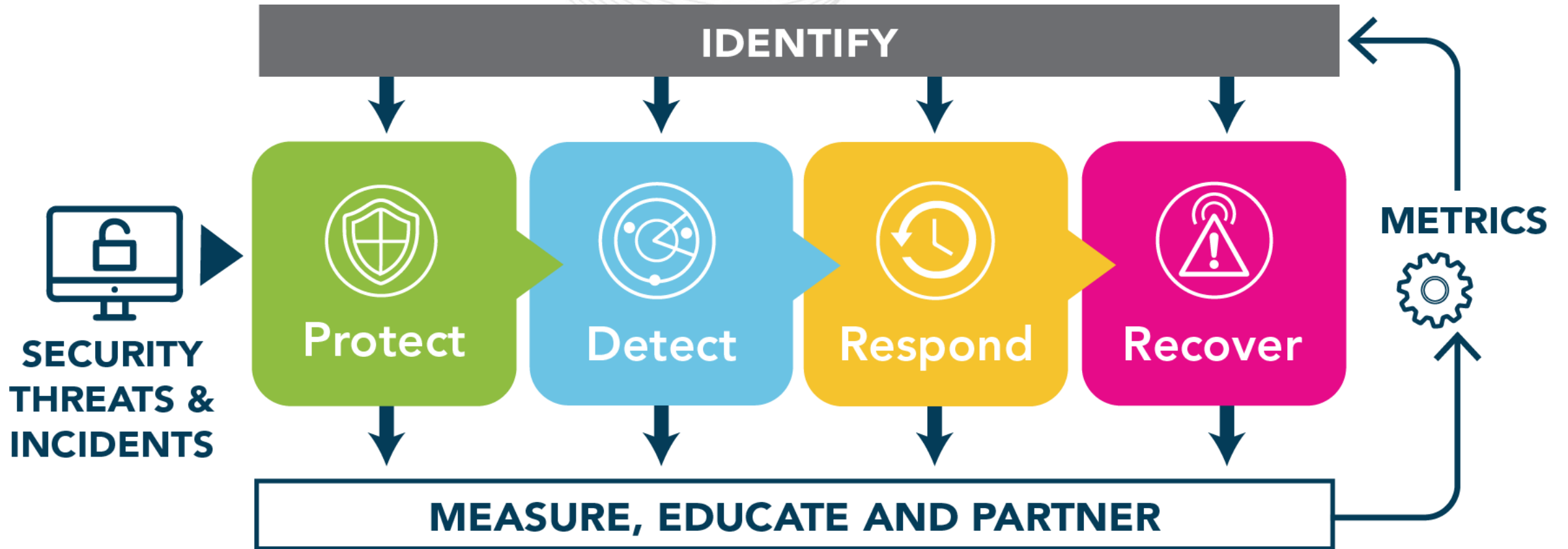


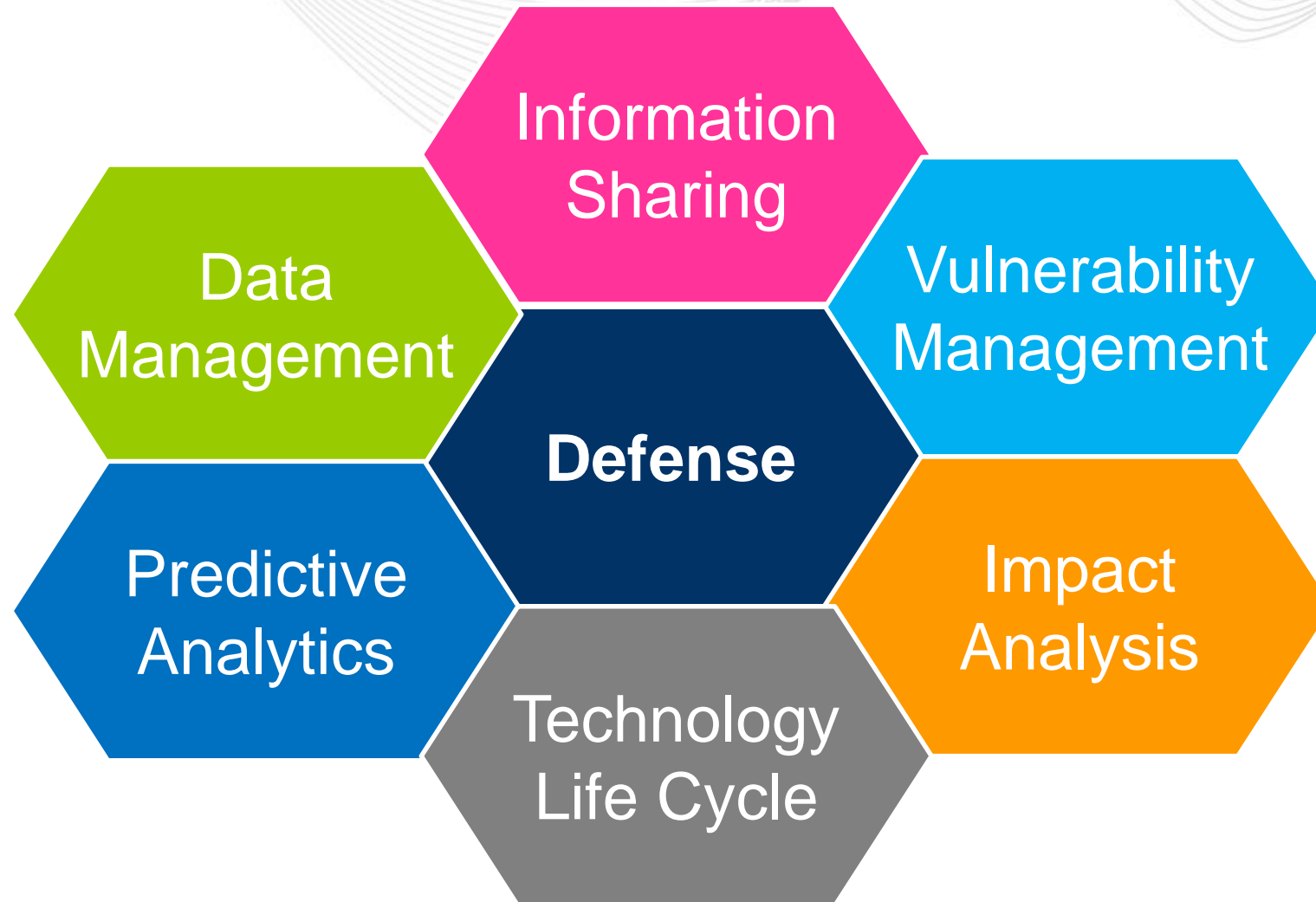
Sensitivity Studies	Impact
<ul style="list-style-type: none"> External Contingencies 	No reliability concerns
<ul style="list-style-type: none"> N-1-1 Relay Trip Conditions 	No cascading outage concerns identified <i>All networked transmission overloads were controlled pre-contingency.</i>
<ul style="list-style-type: none"> Max-Cred Contingency Analysis 	No reliability concerns
<ul style="list-style-type: none"> Transfer Interface Analysis 	No reliability concerns
<ul style="list-style-type: none"> 90/10 Load Forecast Study (156,928 MW) 	No uncontrollable or unexpected issues observed at the elevated load levels
<ul style="list-style-type: none"> Solar and Wind Generation Sensitivity Study 	No reliability concerns

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Resilience and Cybersecurity







Prevention

- Build security into the design
- Implement traditional controls
- Improve security controls



Resilience

- Focus on incident response
- Enhance scenario planning
- Plan and drill restoration scenarios

Collaboration

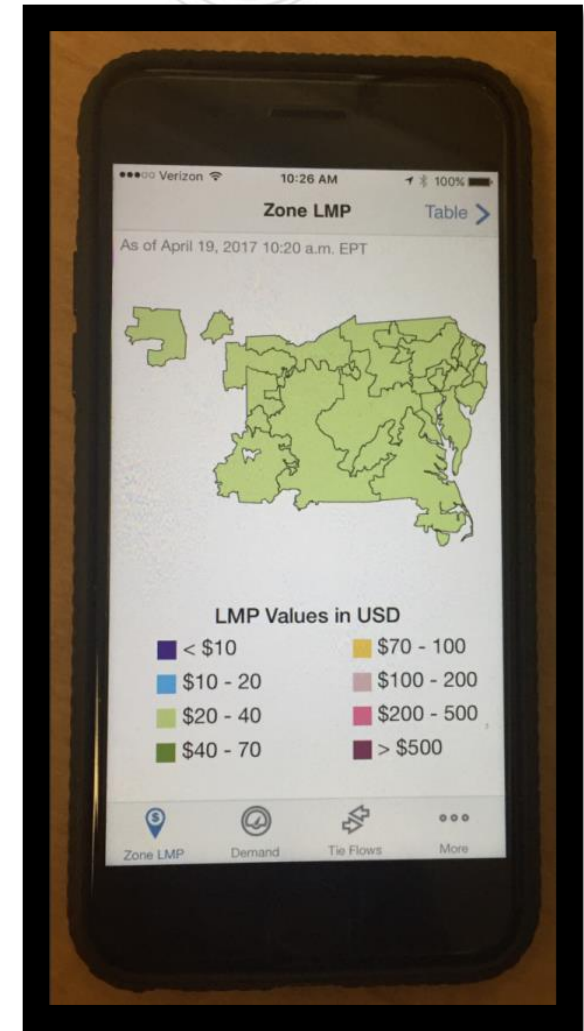
- Coordinate response plans
- Develop and maintain government relationships
- Leverage industry relationships
- Share best practices

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Additional Information

Power Up with the **PJM Now** App!

- See real-time demand
- Track power prices
- Get notifications



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PJM Summer Reliability Assessment



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